



DALHOUSIE
UNIVERSITY

School of Biomedical
Engineering

STRATEGIC

PLAN

2022-2026



Director's Message

The School of Biomedical Engineering (SBME) in the Faculties of Medicine and Engineering at Dalhousie University was established in 1999 and has grown to 6.5 FTE primary-appointed faculty, more than 32 cross appointed faculty members, 1.5 administrative staff, and an annual average of 30 graduate (MAsc and PhD) trainees. Our community is further supported by numerous postdoctoral researchers and research assistants, associates and engineers who work in our laboratories and research programs. Our faculty run internationally and nationally recognized basic, applied and translational research programs in collaborative multi-disciplinary themes including biomaterials, biotechnologies and biomedicine, and biomechanics from cellular to tissue to human body biomechanics. Commercialization of research outputs within our school has been strong, with 11 spin-out companies.

A self-study of the School of Biomedical Engineering was initiated in 2020, and included a formal internal and external review with survey data from current and past trainees, faculty, staff and stakeholders. Recommendations based on these reviews were finalized in 2021, just prior to my appointment as the new Director of SBME for a five year term in September, 2021. These recommendations formed the basis of a four-year strategic planning exercise for the School initiated in the Winter 2022 academic term.

Strategic planning was led by myself, supported by our School administrator Heather Harris, and also by an external facilitator, Lisa Tilley of Uprise Consulting. A thorough review of the self-study and survey documentation was performed, as well as facilitator-led consultation with faculty deans. All SBME faculty and staff were invited to an in-person full day strategic planning retreat on May 2, 2022 off campus at the Waegwoltic Club. It was a highly productive day, with excellent engagement and focused discussion on our mission, vision, and values, and strategic directions of focus for our School in the coming years. We collectively identified the importance of strategic priorities in biomedical engineering education and student supports at the graduate and undergraduate levels, as well as the need for prioritization of cohesive community building for strategic growth and impact within our community. The following document summarizes our proposed strategic directions until 2026.



Janie Astephen Wilson
Director and Professor
School of Biomedical Engineering



Our Vision

To be a national and international leader in transformative and inclusive biomedical research, education, and knowledge translation with strong regional impact and global reach.

Our Mission

To address societal health challenges through transformative, interdisciplinary research and education in biomedical engineering.

Our Values

Our Core Values are the deeply ingrained principles that guide us in the timely and collaborative delivery of our programs and services.

Respectful Engagement – interrelating that conveys a sense of presence, worth, and positive regard. This encompasses behaviors such as recognizing another person, understanding and appreciating them, listening, attending to their needs, emphasizing their good qualities, and making requests, not demands of them. Respectful engagement among colleagues and students signals acceptance and genuine mutual interest in one another, which develops a greater capacity for deeper and more nuanced information processing about work, education, and research.

Embracing Equity, Diversity, Inclusion, and Accessibility – we aspire to help create the opportunities and culture that will enable our school to flourish by addressing the broader contemporary issues of equity, diversity, inclusion, and accessibility. Embracing EDIA values within our school serves to promote a better and more inclusive higher education and workplace experience for all.

Openness and Transparency – we are receptive to new ideas and information. We look beyond our first impression, release any preconceived notions, and approach each opportunity as though we've never encountered the situation before. We operate in such a way that it is easy for others to see what actions are performed.



Key Milestones



Community Engagement

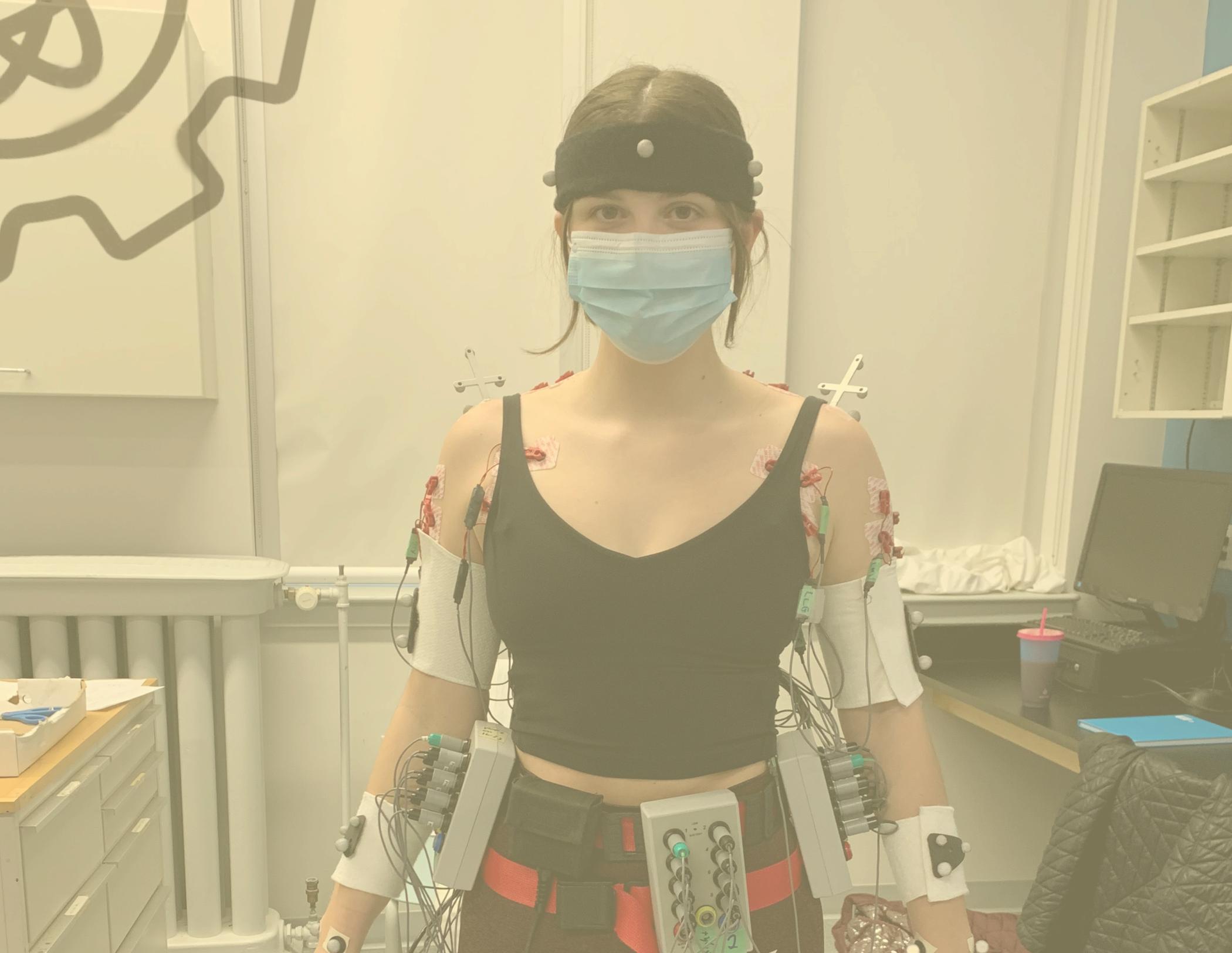
1. New and contiguous space and space capacity for our central offices, faculty and research growth, graduate students and common space to support cohesiveness, collaboration and community building
2. Align SBME governance, committee structures and administrative processes to support strategic priorities.
3. Increased community awareness of and collaboration with (internal and external to Dalhousie) SBME, and increased philanthropic activity to support capacity-building of biomedical engineering at Dalhousie and in our community.
4. Ensure our activities reflect the EDIA values of our school.

Education and Training

4. Updated graduate and undergraduate curriculum to align with current priorities and needs of our community
5. Training capacity and growth:
 - a. 15% increase in new graduate students trained before 2026 including more international students
 - b. Increased uptake in undergraduate biomedical engineering certificate program in more disciplines (30% of mechanical engineering, industrial engineering, and process engineering and applied science undergraduate students enrolled by 2026)
 - c. Increased support and opportunities for students from varied backgrounds, including international students.
6. Increased student satisfaction through improved curriculum, increased supports, and community building.
7. Increased postdoctoral scholar cohort and integration of postdoctoral trainees into SBME community.

Research and Translation

8. Strategic faculty growth to support strategic research priorities of School and strategic growth of undergraduate training. (5 new FTE by 2026 including 1-2 CRC in strategic areas)
9. Increase uptake of commercialization training and supports/ programs by faculty and students.
10. Increased purposeful collaborations among SBME members for large grants and projects
11. Increased research promotion



Our Strategic Priorities

1 Education & Student Experience

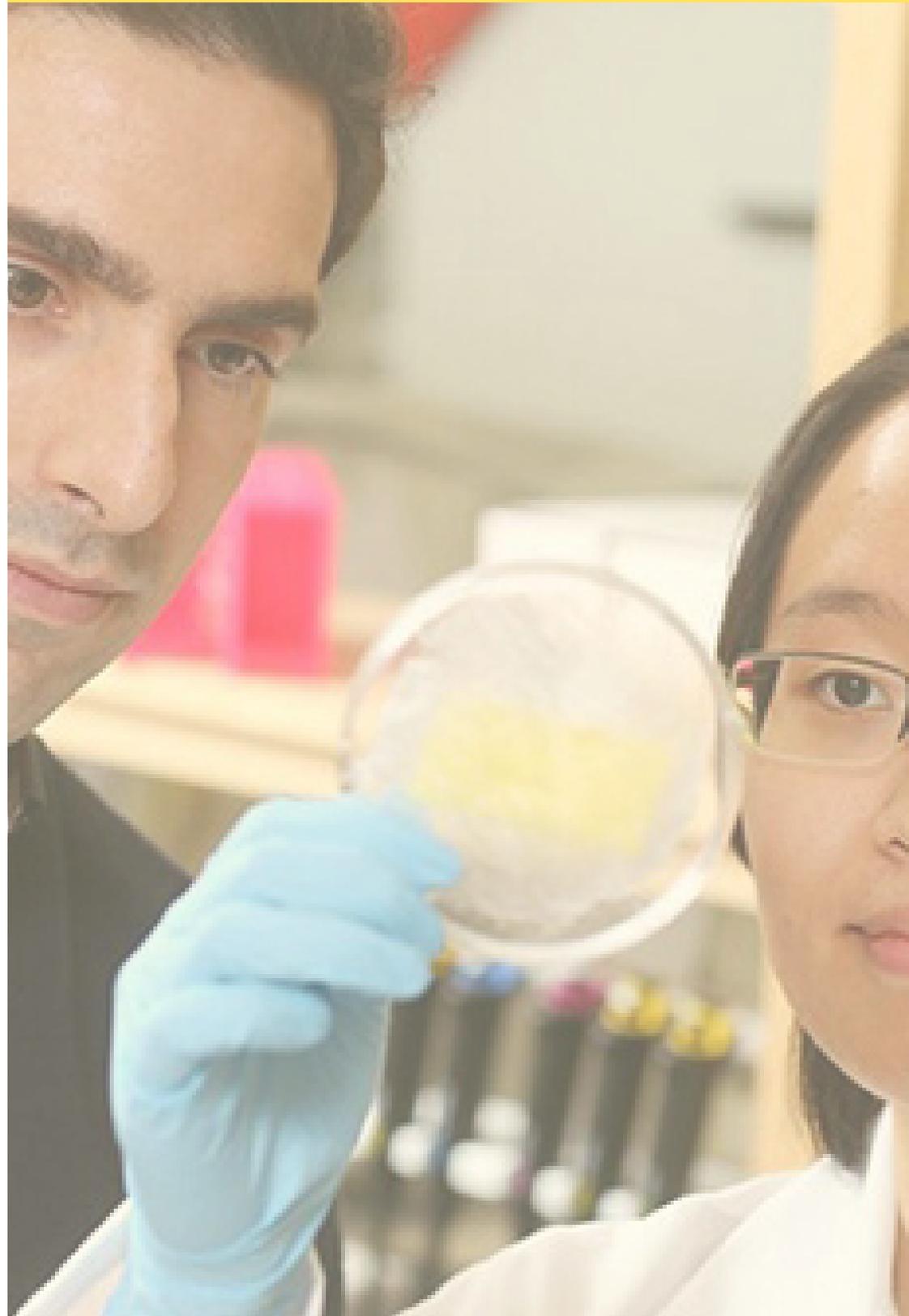
To attract excellent students who are ambitious to learn; to ensure an excellent educational experience; and to produce graduates equipped for personal and professional success.

2 Research and Translation

Creating research opportunities and training that spans medicine, basic science and engineering that addresses global health problems.

3 Community Engagement

Ensure that our community members have access to valued social settings and activities, feel that they can contribute meaningfully to those activities, and develop functional capabilities that enable all to participate fully.



1 Education & Student Experience

1.1. Graduate Program

Strategic Actions:

- New graduate curriculum designed, launched, and evaluated. This will include full review of existing curriculum with mapping of current and desired learning outcomes for the MASc and PhD programs, and a proposed new curriculum. (Led by Graduate Coordinator, supported by Graduate Curriculum Committee)
- Develop and execute a strategy for recruitment for the department, including liaising and collaborating with Faculty of Engineering recruitment and Medical Sciences programs. (Led by SBME Outreach Committee)
- Develop a graduate training and curriculum review survey for faculty and students to be reviewed annually.
- Ensure that outreach and recruitment efforts support EDIA values of SBME through exploring strategic opportunities for recruitment and support for underrepresented cohorts. (Led by SBME Outreach Committee)
- Engage more cross appointed faculty members for graduate student supervision and support. (Led by Graduate Coordinator)
- Based on survey recommendations, review and revise as necessary the communication and documentation strategy used to support graduate student programs in SBME (led by Graduate Administrator in consult with Graduate Coordinator).
- Explore potential CREATE funding for strategic training program expansion in SBME (led by curriculum committee).

Metrics & Timelines:

- New graduate curriculum.
- Increased graduate student applicant pool and graduate student numbers, with particular growth of applicants who self-identify as Indigenous Nova Scotian, Black Nova Scotian and international.
- Increased student supervision by cross appointees in BME.
- Increased graduate student funding levels.
- Increased student satisfaction.
- Opportunities for specialized training (eg. Create, MedTech)
- New graduate curriculum submitted by Sept 1st, 2022; implemented Sept 1st, 2023; reviewed annually by Sept 1st, 2024.

Lead:

- SBME Graduate Coordinator and Chair of Graduate Curriculum Committee, supported by Graduate Administrator .
- MedTech Faculty Lead & Create Chair.



1 Education & Student Experience

1.2. Undergraduate Program

Strategic Actions:

- Create Biomedical Engineering Undergraduate Committee by October, 2022 and appoint chair.
- Create terms of reference for Biomedical Engineering Undergraduate Committee by November, 2022.
- Review and revise as appropriate overall curriculum and potential discipline-specific curriculum plans for undergraduate biomedical engineering certificate program.
- Create and execute a plan for promoting and recruiting students into the biomedical engineering certificate program, including promotion at engineering orientation and ensuring effective promotion and information on faculty of engineering website.
- Ensure that biomedical engineering is highlighted in any coordinated local, national or international outreach activities by the Faculty of Engineering by Fall, 2022.
- Reintroduce Biomechanical Engineering course as a technical elective in Mechanical Engineering in the 2022-23 academic calendar year.
- Develop a coordinated effort of communicating and soliciting senior year design projects from SBME faculty members to support biomedical engineering certificate program in EE, PEAS, MECH, IE and medical sciences.
- Develop a working draft of a proposal for expansion of biomedical engineering at the undergraduate level beyond the certificate program by Dec 2023 including all necessary resources for expansion.

Metrics & Timelines:

- Increase the number of students enrolled in the certificate program, 25% - 30% enrollment by 2026 in EE, CE, ME, IE, CHEE programs
- Coordinated high school outreach of biomedical engineering at Dalhousie and evidence of increased interest in Dalhousie Engineering through these efforts
- Increased number of senior year design projects offered by biomedical engineering professors for undergraduate programs.

Lead:

- Undergraduate Committee and Outreach Committee



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Research and Translation

2.1 Strategic Research Collaborations

Strategic Actions:

- Create an SBME research and innovation committee
- Support strategic grant application by groups of SBME faculty members to increase collective capacity for research and training, potentially moving toward a center for excellence in key area.
- Develop a strategic SBME partnership with Dal Innovates and the IdeaHub to directly support translational and commercialization opportunities

Metrics & Timelines:

- CFI infrastructure grant capture by group of SBME faculty by 2026.
- Increased collaborative submissions among SBME faculty members.
- Partnership established with Dal Innovates and IdeaHUB.
- Increased translation and commercialization activity of research output.

Leads:

- SBME Research and Innovation Committee

2.2 Targeted Growth

Strategic Actions:

- Develop a strategic hiring committee to identify key priority areas for new hires to support research and educational directions of SBME, in consideration of our EDIA values.
- Propose new CRC Tier 1 and/or 2 and explore other endowment chair positions to support strategic hiring.
- Explore potential new TT hires (SBME and/or joint with other disciplines) to support expansion of biomedical engineering for undergraduate engineering education.
- Strategic appointments to align with research goals (Appointment Committee)

Metrics & Timelines:

- 2 CRCs by 2026
- 3 additional new faculty by 2026
- New targeted appointments, emphasis on engineering and comp-sci
- Increase purposeful collaborations of SBME & large team grant captures

Lead:

- SBME Research & Innovation Committee Chair

3 Community Engagement

3.1 Foster a Sense of Community and Engagement - Internally

Strategic Actions:

- Physical space audit in consult with our internal (Eng. Med. Den.) partners by December, 2022. (Lead: Department Administrator).
- Create a SBME committee that deals with space capacity and includes associated terms of reference to support internal audit and to create a strategic plan for cohesive space capacity building for SBME. (Lead by Department Administrator with support from Director).
- Governance & internal processes and structure review; propose and seek support for changes in committee structures and terms of reference to support strategic priorities; propose new MOUs with Faculties of Medicine, Engineering and Dentistry to enhance efficiencies and alignment with strategic priorities (led by Director, by December 2022).
- Promotion, website and social media, changes and any processes in place by July, 2023 (Led by Department Administrator and Graduate Administrator with support of Outreach committee)
- Annual record keeping structure for student and funding stats.
- Streamline/optimize student communications.
- Engagement of Postdoctoral Fellows.

Metrics & Timelines:

- Space committee in place, existing space map for current space use by May 2023, detailed plan for space expansion by December 2023.
- Design plan for new SBME space by 2024.
- Website renewal completed by December 2023.
- Updated committee structures and terms of reference approved by December, 2022.
- Research and training promotion.
- Optimize student communication and record keeping by June 2023.

Lead:

- Department Administrator, Graduate Administrator and supported by Director
- SBME Research and Innovation Committee



3 Community Engagement

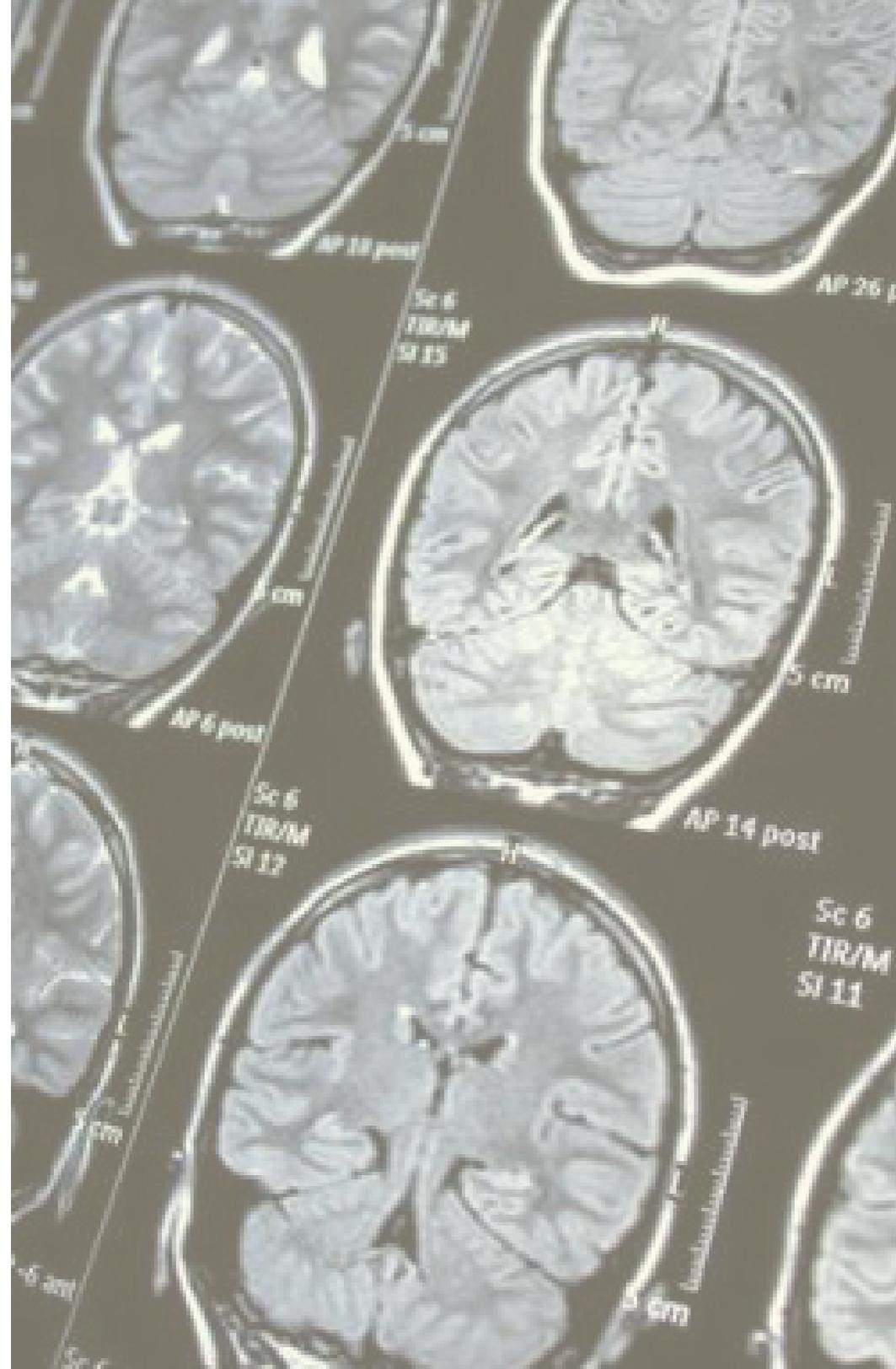
3.2 Foster a Sense of Community and Engagement - Externally

Strategic Actions:

- Build relationships with Dal advancement, QEII foundation, IWK Foundation.
- MOUs (strategically) with Faculty of Dentistry, Applied Oral Sciences, Nova Scotia Health, IWK by May, 2023).
- Plan for shared collective resources externally with partners like Dal Innovates, IdeaHub, BioNova, Innovacorp, Industry partners, etc.
- Streamlined process for graduate students working with NSH and IWK.

Lead:

- Director and SBME Outreach Committee





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